

## CLAIMS

What is claimed is:

1. A method for asynchronously replicating data changes in a database system, comprising:

(a) capturing information for a data update in a source table from a database log, wherein a data value from the data update is not in the database log, wherein the update information comprises a key column value; and

(b) building a query to obtain the data value from the source table using the update information.

2. The method of claim 1, wherein the data is a large object (LOB).

3. The method of claim 1, wherein the building (b) comprises:

(b1) building the query to obtain the data value from the source table using the key column value, wherein the key column value uniquely identifies a row of the source table within which the data resides.

4. The method of claim 1, further comprising:

(c) executing the query;

(d) receiving the data value from the source table; and

(e) replicating the data update at a target table.

5. The method of claim 1, wherein the capturing (a) further comprises:

(a1) storing the data update information, wherein the stored data update information comprises the key column value.

6. The method of claim 5, wherein the capturing (a) further comprises:

(a2) capturing a key column update from the database log;

(a3) matching a before update key column value for the key column update with the stored key column value; and

(a4) replacing the stored key column value with an after update key column value for the key column update.

7. The method of claim 6, wherein the building (b) comprises:

(b1) building the query to obtain the data value from the source table using the replacement key column value.

8. The method of claim 6, wherein the before update key column value and the after update key column value were recorded in the database log.

9. The method of claim 6, wherein the data update and the key column update were performed in a same transaction.

10. The method of claim 5, further comprising:

(c) executing the query;

(d) receiving an empty value for the data;

(e) storing the data update information in a missing data list, wherein the stored data update information comprises the key column value;

(f) capturing a key column update from the database log;

(g) matching a before update key column value for the key column update with the stored key column value in the missing data list; and

(h) replacing the stored key column value with an after update key column value for the key column update; and

(i) building a second query to obtain the data value from the source table using the replacement key column value.

11. The method of claim 10, further comprising:

(j) executing the second query;

(k) receiving the data value from the source table; and

(l) replicating the data update and the key column update at the target table.

12. The method of claim 10, wherein the data update and the key column update were performed in different transactions.

13. A computer readable medium with program instructions for asynchronously replicating data changes in a database system, comprising the instructions for:

(a) capturing information for a data update in a source table from a database log, wherein a data value from the data update is not in the database log, wherein the update information comprises a key column value; and

(b) building a query to obtain the data value from the source table using the update information.

14. The medium of claim 13, wherein the data is a large object (LOB).

5

15. The medium of claim 13, wherein the building (b) comprises the instructions for:

(b1) building the query to obtain the data value from the source table using the key column value, wherein the key column value uniquely identifies a row of the source table within which the data resides.

10

16. The medium of claim 13, further comprising the instructions for:

(c) executing the query;

(d) receiving the data value from the source table; and

(e) replicating the data update at a target table.

15

17. The medium of claim 13, wherein the capturing instruction (a) further comprises the instructions for:

(a1) storing the data update information, wherein the stored data update information comprises the key column value.

20

18. The medium of claim 13, wherein the capturing instruction (a) further comprises the instructions for:

- (a2) capturing a key column update from the database log;
- (a3) matching a before update key column value for the key column update with the stored key column value; and
- (a4) replacing the stored key column value with an after update key column value for the key column update.

19. The medium of claim 18, wherein the building instruction (b) comprises the instructions for:

- (b1) building the query to obtain the data value from the source table using the replacement key column value.

20. The medium of claim 18, wherein the before update key column value and the after update key column value were recorded in the database log.

21. The medium of claim 18, wherein the data update and the key column update were performed in a same transaction.

22. The medium of claim 17, further comprising the instructions for:
- (c) executing the query;
  - (d) receiving an empty value for the data;
  - (e) storing the data update information in a missing data list, wherein the stored data update information comprises the key column value;
  - (f) capturing a key column update from the database log;

(g) matching a before update key column value for the key column update with the stored key column value in the missing data list; and

(h) replacing the stored key column value with an after update key column value for the key column update; and

5 (i) building a second query to obtain the data value from the source table using the replacement key column value.

23. The medium of claim 22, further comprising the instructions for:

(j) executing the second query;

10 (k) receiving the data value from the source table; and

(l) replicating the data update and the key column update at the target table.

24. The medium of claim 22, wherein the data update and the key column update were performed in different transactions.

15 25. A system, comprising:

a source database comprising a source table;

a database log at the source database, wherein the database log comprises information for a data update in the source table, wherein a data value from the data update is not in the database log, wherein the update information comprises a key column value; and

20 a mechanism for building a query to obtain the data value from the source table using the update information.

26. The system of claim 25, wherein the data is a large object (LOB).

27. The system of claim 25, wherein the query to obtain the data value from the source table uses the key column value, wherein the key column value uniquely identifies a row of the source table within which the data resides.

28. The system of claim 25, wherein the data update is replicated at a target table.

29. The system of claim 25, further comprising a memory at the source database, wherein the data update information is stored in the memory

30. The system of claim 25, wherein the database log further comprises information for a key column update, where the information for the key column update comprises a before update key column value and an after update key column value, wherein the before update key column value is matched with a stored key column value, wherein the stored key column value is replaced with the after update key column value.

31. The system of claim 30, wherein the query is built to obtain the data value from the source table using the replacement key column value.

32. The system of claim 30, wherein the data update and the key column update were performed in a same transaction.

33. The system of claim 29, wherein the data update information is stored in the memory in a missing data list after an empty value for the data is received in response to the query, wherein the stored data update information comprises the key column value;

wherein the database log further comprises information for a key column update, where the information for the key column update comprises a before update key column value and an after update key column value, wherein the before update key column value is matched with a stored key column value in the missing data list, wherein the stored key column value is replaced with the after update key column value;

wherein the mechanism builds a second query to obtain the data value from the source table using the replacement key column value.

34. The system of claim 33, wherein the data update and the key column update were performed in different transactions.